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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,938	10/06/2003	Benjamin Ari Tober	111244.150 (US2)	3607
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WILMERHALE/BOSTON 60 STATE STREET BOSTON, MA 02109			EXAMINER HOANG, HIEU T	
			ART UNIT 2152	PAPER NUMBER
			NOTIFICATION DATE 01/02/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/679,938	Applicant(s) TOBER ET AL.	
	Examiner Hieu T. Hoang	Art Unit 2152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 21-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/26/2007 has been entered.
2. Claims 13-20 are cancelled.
3. Claims 1-12 and 21-24 are pending.

Response to Arguments

4. Applicant's arguments have been fully considered but they are moot in view of new ground(s) of rejection.

Claim Objections

5. Claims 12 and 23 are objected to because of the following informalities: the claim preambles are too general. A more specific preamble for each claim is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
7. Claims 1-12 and 21-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. For claim 1, it is unclear what is meant by “running application code that is generically written for an operating system on an operating system that operates in multiple virtual router contexts”. Because the claim can be read as “running application code that is generically written for an operating system” on an “operating system that operates in multiple virtual router contexts” without running the application code in multiple contexts. It is unclear whether the applicant’s intention is to claim running application code in multiple contexts or just running application code on an operation system that operates in multiple contexts.

9. For claim 2, it is unclear what is meant by “running separate operating system instances on a plurality of processors residing on the network device and implementing one IP host.” Since previous limitations of the claim generally reciting mapping a first and a second application corresponding to a first and a second context to one operating system instance (see preamble of claim 2 and limitations 3 and 4), that the final limitation recites “running separate operating system instances” is unclear as to what are these separate operating system instances and how they are related to the one operating system instance recited before. Furthermore, it is vague why one has to create “a process in the first routing context that inherits routing context information,” and what and/or which routing context information is being inherited.

10. For claim 12, in the last limitation, it is unclear what “multiple operating system instances” have to do with the applications and routing contexts previously recited.

11. For claim 23, it is unclear what inheritance of a field in a virtual routing context has to do enabling the processors running multiple operating system instances previously recited. It seems that each processor has a relationship with each virtual routing context, but the relationship is not clearly disclosed.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al. (Customizable Virtual Private network Service with QoS, hereafter Lim), in view of Hipp et al. (US 7,210,147, hereafter Hipp).

14. For claim 1, Lim discloses a method for use in managing resources in networking (abstract), the method comprising:

adding a field to an operating system kernel software procedure, the field referencing a virtual router context (page 13, left column, lines 11-18, vpn_id is read as a virtual router context; figure 10, kernel space); and

modifying packet processing software code to cause the packet processing software code to execute in accordance with the virtual router context (page 13, left column, lines 20-25, figure 10, kernel space).

Lim does not disclose running application code that is generically written for an operating system on an operation system that operates in multiple virtual router contexts;

However, Hipp discloses the same (fig. 10, col. 11 lines 1-34, operating system kernel operating in multiple contexts according to multiple application processes with different IDs)

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Lim and Hipp to allow for migration of application instances (Hipp, summary)

15. For claim 21, Lim-Hipp further discloses providing an IP host that is compatible with existing protocols (Hipp, abstract, virtualizing IP address).

16. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim-Hipp, further in view of Lundback et al. (US 6,912,590, hereafter Lundback).

17. For claim 22, Lim-Hipp does not disclose running separate operating system instances on a plurality of processors residing on the network device, which implement a single IP host.

However, Dalton discloses the same (abstract, single IP addressing for multi-processor distributed application)

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Lim-Hipp and Lundback to distribute application processing using a processor cluster of Lundback to the system of Lim-Hipp (Lundback, abstract).

18. Claims 2-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alfieri et al. (US 2002/009849, hereafter Alfieri), in view of Dalton et al. (US 2003/0172109, hereafter Dalton), further in view of Lundback.

19. For claim 2, Alfieri discloses a method for using a network device having an operating system instance that operates in a plurality of routing contexts (abstract, [0036] lines 4-8, a virtual router packet switching system is read as the claimed network device), the method comprising:

associating a first network with a first routing context and a second network with a second routing context, wherein the first context is isolated from the second context ([0034] lines 1-4, [0036] lines 1-6, each virtual private routed network VPRN is associated with a different virtual router VR, and each VR has a distinct routing context area CTXT);

receiving, at the same networking address of the network device ([0025] lines 1-6, overlapping addresses can be used for different virtual access router VARs), a first message originating from the first network and a second message originating from the second network by the network device ([0036] lines 8-15);

associating the first message with a first application running on the operating system instance of the network device based on a determination that the first message is associated with the first routing context ([0037] lines 1-18 and [0038] lines 1-10); and

associating the second message with a second application running on the operating system instance based on a determination that the second message is associated with the second routing context ([0037] lines 1-18 and [0038] lines 1-10);

Alfieri does not explicitly disclose creating a process in the first routing context that inherits routing context information.

However, Dalton discloses creating a process in the first routing context that inherits routing context information ([0049], a method of making children processes automatically inherit

parent process when a parent 'folks' a child and transfers a tag (or a routing context) to the child).

Alfieri-Dalton does not disclose running separate operating system instances on a plurality of processors residing on the network device and implementing one IP host.

However, Lundback discloses the same (abstract, single IP addressing for multi-processor distributed application)

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Alfieri and Dalton and Lundback to distribute application processing using a processor cluster of Lundback to the system of Alfieri (Lundback, abstract).

11. For claim 3, Alfieri-Dalton discloses the invention as in claim 2. Alfieri-Dalton further discloses at least one of Transport Control Protocol (TCP), User Datagram Protocol (UDP), and raw IP code (Alfieri, [0020] lines 5-10) associated with the operating system instance inherits the routing context from the process in the first routing context (Dalton [0049]).

20. For claim 4, Alfieri-Dalton discloses the invention as in claim 2. Alfieri-Dalton further discloses:

assigning to the first message a first routing context number, wherein the first message is determined to be associated with the first routing context using the first routing context number (Alfieri, [0037] lines 1-5, routing context number 134 is assigned to any message from VR#134, messages from VR #134 is then associated with routing context number 134); and assigning to the second message a second routing context number, wherein the second message is determined

to be associated with the second routing context using the second routing context number (Alfieri, [0037] lines 1-5, figure 5, there can M message context numbers wherein $M > I$).

21. For claim 5, Alfieri-Dalton discloses the invention as in claim 4. Alfieri-Dalton further discloses:

assigning a first routing table to the first router context, wherein the first routing table is associated with the first context number (Alfieri, [0037] lines 1-5, routing table 134 is assigned to router context 134); and

assigning a second routing table to the second router context, wherein the second routing table is associated with the second context number (Alfieri, [0037] lines 1-5, figure 5, there can M message context numbers wherein $M > I$).

22. For claim 6, Alfieri-Dalton discloses the invention as in claim 2. Alfieri-Dalton further discloses the first and second networks are private networks that are isolated from the Internet (Alfieri, figure 1, VPRNs are virtual private networks and are isolated from the Internet).

23. For claim 7, Alfieri-Dalton discloses the invention as in claim 2. Alfieri-Dalton further discloses information received by the network device from the first network is not provided to the second network by the network device, and wherein information received by the network device from the second network is not provided to the first network by the network device (Alfieri, [0036] lines 13-20, the task executes using the data from the context area CTXT associated with the VR which sent out the task).

24. For claim 8, Alfieri-Dalton discloses the invention as in claim 2. Alfieri-Dalton further discloses both the first message and the second message include at least one data packet (Alfieri, [0036] lines 12-13).

25. For claim 9, Alfieri-Dalton discloses the invention as in claim 2. Alfieri-Dalton further discloses the first and second messages are received by the network device using a first network connection initiated by a first process and a second network connection initiated by a second process, respectively (Alfieri, [0036] lines 8-20, [0037] lines 12-16), the method further comprising:

assigning to the first process a default first routing context number (Alfieri, [0036] lines 13-16); and

assigning to the second process a default second routing context number (Alfieri, [0036] lines 13-16, each process is coupled with the appropriate context area).

26. For claim 10, Alfieri-Dalton discloses the invention as in claim 9. Alfieri-Dalton further discloses inheriting the default first routing context by a third process, whose parent is the first process, at the time of creation of the third process (Dalton, [0049]).

27. For claim 11, Alfieri-Dalton discloses the invention as in claim 2. Alfieri-Dalton further discloses associating at least one interface to the operating system instance with a routing context (Alfieri, [0038] lines 6-10, figure 4, interfaces PI's and VI's, [0033] lines 1-17, [0041] lines 1-7).

28. For claim 12, Alfieri discloses a computer system comprising:

a first network that is associated with a first routing context ([0034] lines 1-4, [0036] lines 1-6, each virtual private routed network VPRN is associated with a different virtual router VR, and each VR has a distinct routing context area CTXT);

a second network that is associated with a second routing context ([0034] lines 1-4, [0036] lines 1-6);

a network device that receives messages from both the first network and second network at a networking address (abstract, [0036] lines 4-8, a virtual router packet switching system is read as the claimed network device; [0025] lines 1-6, overlapping addresses can be used for different virtual access router VARs); wherein the network device is configured to determine that messages received from the first network are associated with the first routing context and to determine that messages received from the second network are associated with the second routing context ([0037] lines 1-18 and [0038] lines 1-10).

Alfieri does not explicitly disclose a process running on the first network that is associated with the first routing context, wherein the process inherits information from the first routing context when the process is created by the first routing context.

However, Dalton discloses a process running on the first network that is associated with the first routing context, wherein the process inherits information from the first routing context when the process is created by the first routing context ([0049], a method of making children processes automatically inherit parent process when a parent 'folks' a child and transfers a tag (or a routing context) to the child, [0052], default and automatic operation at start up).

Alfieri-Dalton does not disclose running separate operating system instances on a plurality of processors residing on the network device and implementing one IP host.

However, Lundback discloses the same (abstract, single IP addressing for multi-processor distributed application)

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Alfieri and Dalton and Lundback to distribute application processing using a processor cluster of Lundback to the system of Alfieri (Lundback, abstract).

29. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundback, in view of Hipp.

30. For claim 23, Lundback discloses an apparatus residing in a network comprising:
a plurality of processors residing in the apparatus and running multiple operating system instances (abstract, processor cluster for processing distributed application); and

Lundback does not explicitly disclose at least one computer readable medium storing an operating system instance whose kernel includes a field to indicate an appropriate virtual routing context within the apparatus to handle an incoming data packet, wherein the field is heritable in the virtual routing context.

However, Hipp discloses the same (fig. 10, kernel with fields identifying processes within an application, col. 8 lines 26-37, cloned fields are heritable)

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Lundback and Hipp to allow for migration of application instances (Hipp, summary)

31. For claim 24, discloses providing an IP host that is compatible with existing protocols (Lundback, abstract, single host IP address).

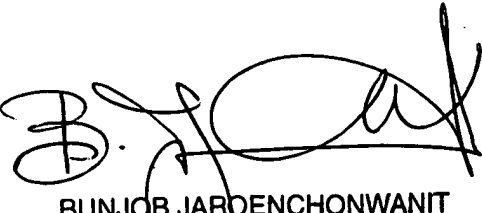
Conclusion

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hieu T. Hoang whose telephone number is 571-270-1253. The examiner can normally be reached on Monday-Thursday, 8 a.m.-5 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on 571-272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HH


BUNJOB JAROENCHONWANIT
SUPERVISORY PATENT EXAMINER

12/20/7